

CLAIMS

What is claimed is:

1. A method for invoking multiple parallel  
5 instances of a same node comprising the steps of:
  - a) defining a multinode as a node that allows for multiple parallel activation of a node;
  - b) at run time determining the number of nodes to be activated based on an activation rule;
  - 10 c) executing the nodes in the multinode;
  - d) determining when the execution of the multinode is completed based on a termination rule; and
  - e) when the execution of the multinode is complete, executing a successor node; and
  - 15 f) when the execution of the multinode is not complete, processing continues at step c).
2. The method of claim 1  
wherein determining the number of nodes to be  
20 activated based on an activation rule includes determining the number of nodes to be activated based on an activation rule based on the number of resources available.
3. The method of claim 1  
25 wherein determining the number of nodes to be activated based on an activation rule includes determining

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the number of nodes to be activated based on an activation rule based on the number of elements in a vector.

4. The method of claim 1

5 wherein determining when the execution of the multinode is completed based on a termination rule includes evaluating whether a multinode goal has been achieved, and when the multinode goal has been achieved, terminating the execution of the multinode.

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5. The method of claim 1

wherein determining when the execution of the multinode is completed based on a termination rule includes determining whether all service nodes have been completed, and when all service nodes have been completed, terminating the execution of the multinode.

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6. The method of claim 1

wherein terminating the execution of the multinode includes canceling the other service nodes and proceeding to a successor node.

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7. The method of claim 1 further comprising the step of

allowing flow to continue to a successor node when all invoked service nodes have been completed.

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8. The method of claim 1 wherein the step of executing the multinode includes the step of

providing each node in the multinode with different input data for execution.

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9. The method of claim 1 wherein the step of executing the multinode includes the step of

providing different attributes for each node in the multinode.

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10. The method of claim 9 wherein the attributes includes one of resource selection criteria, security, exception handling criteria, and deadlines for node execution.

11. The method of claim 1 wherein the step of determining when the execution of the multinode is completed based on a termination rule further includes the step of

specifying multinode termination by a condition;

checking the condition when one of the nodes in the

multinode terminates; and

when the condition is satisfied, a successor node is activated, and other nodes in execution within the multinode are canceled.

12. A system for processing multinode definitions comprising:

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a workflow engine for processing workflow definitions;  
and

a multinode handling facility coupled to the workflow  
engine for processing multinodes, determining the number of  
5 nodes in the multinode to be activated based on an  
activation rule; executing the nodes in the multinode;  
determining when the execution of the multinode is  
completed based on a termination rule; and when the  
execution of the multinode is complete, executing a  
10 successor node.

13. The system of claim 12 wherein the multinode handling  
facility further comprises

a multinode determination unit for receiving a node  
15 definition and responsive thereto for determining whether  
the current node is a normal work node or a multinode.

14. The system of claim 12 wherein the multinode handling  
facility further comprises

20 an activation facility for receiving an activation  
rule and based thereon for determining whether activation  
is by resource or by variable.

15. The system of claim 14 wherein the multinode handling  
25 facility further comprises

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a resource-based activation facility coupled to the activation facility for processing activation by resource; and

a variable-based activation facility coupled to the  
5 activation facility for processing activation by variable.

16. The system of claim 15 wherein the resource-based activation facility further comprises

a resource rule execution unit for executing the  
10 resource rule of the multinode; and

a new instance generation unit for starting new instances of the multinode for each new resource in the resource list.

17. The system of claim 16 wherein the resource rule is specified in a service node tag of a multinode description.

18. The system of claim 15 wherein the variable-based activation facility further comprises

a variable name reader for reading the variable name; and

a new instance generation unit for starting new instances of the multinode for each new element in the variable identified by the variable name.

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19. The system of claim 18 wherein the variable type is one of a vector and a list.

20. The system of claim 12 wherein each node in the multinode is provided with different input data and different attributes for execution; wherein the attributes
- 5 includes one of resource selection criteria, security, exception handling criteria, and deadlines for node execution.

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